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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/688,377	10/17/2003	Timothy J. Wilson	CE11587R (79532)	2221
22242	7590	04/19/2005	EXAMINER	
FITCH EVEN TABIN AND FLANNERY 120 SOUTH LA SALLE STREET SUITE 1600 CHICAGO, IL 60603-3406			BHANDARI, PUNEET	
			ART UNIT	PAPER NUMBER
			2666	

DATE MAILED: 04/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/688,377

Applicant(s)

WILSON, TIMOTHY J.

Examiner

Puneet Bhandari

Art Unit

2666

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 9-11, 13-19, 21-24, 26 & 27 is/are rejected.
- 7) ☒ Claim(s) 6-8, 12, 20 and 25 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- 1) ☐ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims **1-5,9-10,13-16, 18-19,21-24** rejected under 35 U.S.C. 102(e) as being anticipated by Kallio (US 2002/0147008).

Regarding claim 1, a method comprising

- Providing at least one threshold value is anticipated by *"threshold comparison"* disclosed on page 4, paragraph 36, lines 3-9;
- Determining a quality of service for a wireless communication link with at least one access point that comprises a part of a wireless local area network is anticipated by *"WLAN- rx-level"* disclosed on page 4, paragraph 36, lines 1-15 ;
- Determining a likelihood that the quality of service will have at least a predetermined relationship with respect to the at least one threshold value at a predetermined future time is anticipated by *"WLAN- rx-level (transmission level) threshold comparison"* disclosed on page 4, paragraph 36, lines 1-15.

Regarding claim 2, wherein determining a quality of service for a wireless communication link with at least one access point that comprises a part of wireless local

Art Unit: 2666

area network is anticipated by *"WLAN- rx-level"* disclosed on page 4, paragraph 36, lines 1-15; comprises determining a quality of service for each wireless communication link with a plurality of access point that comprise a part of wireless local area network is anticipated by *"WLAN- rx-level"* disclosed on page 4, paragraph 36, lines 1-15;

Regarding claim 3, wherein determining a quality of service for a wireless communication link with at least one access point that comprises a part of wireless local area network comprises determining quality of service values for a wireless communication link with one access point over a sampling period of time is anticipated by *"MS 150 measures signal levels of WLAN link at all times"* disclosed on page 5, paragraph 42, line 5.

Regarding claim 4, wherein determining a likelihood that the quality of service will have at least a predetermined relationship with respect to the at least one threshold value at a predetermined future time comprises, using the plurality of quality of service values to estimate a projected quality of service at a predetermined future time is anticipated by *"WLAN rx-level (transmission level) may contain two threshold values"* disclosed on page 5, paragraph 48, lines 1-8.

Regarding claim 5, wherein determining a likelihood that the quality of service will have at least a predetermined relationship with respect to the at least one threshold value at a predetermined future time comprises, using the plurality of quality of service values to extrapolate projected quality of service at the predetermined future time is anticipated by *"WLAN rx-level drops below limit"* disclosed on page 5, paragraph 42, line 6.

Regarding claim 9, further comprising providing a first signal when there is at least a predetermined likelihood that the quality of service will have at least the predetermined relationship with respect to the at-least one threshold value at predetermined time is anticipated by *"if the WLAN Rx-level is higher than the upper threshold value"* disclosed on page 5, paragraph 48, lines 1-8.

Regarding claim 10, when there is not at least a predetermined likelihood that the quality of service will have at least the predetermined relationship with respect to the at least one threshold value at predetermined future time, determining a likelihood that the quality of service will have at least a predetermined relationship with respect to the at least one threshold value at least a second predetermined future time, which second predetermined future time is different than the predetermined future time is anticipated by *"WLAN rx-level (transmission level) may contain two threshold values"* disclosed on page 5, paragraph 48, lines 1-8.

Regarding claim 13, method of claim 1, further comprising:

- providing a list that identifies at least one access point is anticipated by *"mobile station receive information regarding WLAN radio"* disclosed in page 3, paragraph 30, lines 5-8

- using the list when determining the likelihood that the quality of service will have at least a predetermined relationship with respect to the at least one threshold value at a future time is anticipated by *"based on receive signal level comparison with the threshold value mobile makes the decision to select a WLAN cell or a GSM cell"* disclosed on page 4, paragraph 36, lines 1-15.

Regarding claim **14**, wherein using the list when determining the likelihood that the quality of service will have at least a predetermined relationship with respect to the at least one threshold value at a predetermined future time comprises using the list to identify access points to be considered when determining the likelihood is anticipated by *"measurement report calculated by the mobile station"* disclosed in page 5, paragraph 48, lines 1-11.

Regarding claim **15**, further comprising receiving at least one parameter from an access point, and wherein determining a likelihood that the quality of service will have at least a predetermined relationship with respect to the at least one threshold value at a predetermined future time comprises using at least one parameter when determining the likelihood that the quality of service will have at least a predetermined relationship with respect to the at least one threshold value at predetermined future time is anticipated by *"during the handover from WLAN to GSM network WLAN-rx-level threshold comparison takes place"* disclosed on page 6, paragraph 53-lines 1-11-paragraph 54-lines 1-8.

Regarding claim **16**, wherein determining quality of service comprises determining a received signal strength value as corresponds to the wireless communication link is anticipated by *"WLAN rx-level threshold"* disclosed on page 4, paragraph 36, lines 1-9.

Regarding claim **18**, wherein determining a likelihood that a quality of service will have at least a predetermined relationship with respect to the at least one threshold value at a predetermined future time comprises determining a probability that quality of service will have at least a predetermined relationship with respect to the at least one

threshold values at a predetermined future time is anticipated by "*WLAN-rx-level threshold comparison takes place in-order to select WLAN cell*" disclosed on page 6, paragraph 53-lines 1-11-paragraph 54-lines 1-8.

Regarding claim **19**, wherein

-determining a quality of service for a wireless communication link comprises determining a quality of service for each of plurality of wireless communication links that comprise a part of wireless local area network is anticipated by "*MS 150 measures WLAN signal levels at all time*" disclosed on page 5, paragraph 42, line 5; and

-determining a likelihood that the quality of service will have at least a predetermined relationship with respect to the at least one threshold value at a predetermined future time is anticipated by "*WLAN- rx-level (transmission level) threshold comparison*" disclosed on page 4, paragraph 36, lines 1-15; comprises:

-estimating a likely future quality of service value for each of plurality of wireless communication links at future time is anticipated by "*WLAN rx-level (transmission level) may contain two threshold values*" disclosed on page 5, paragraph 48, lines 1-8;

-selecting which ever of likely future quality of service value represent a best quality of service relative to the other likely future quality of service values to provide a selected future quality of service value is anticipated by "*using Rx-levels to monitor the quality of service*" disclosed on page 4, paragraph 36, lines 1-15;

-using the selected future quality of service value to determine the likelihood that the quality of service will have at least a predetermined relationship with respect to the at least one threshold value at predetermined future time is anticipated by "*comparing*

Rx-level with threshold value to make a decision regarding the future hand off

disclosed on page 4, paragraph 36, lines 1-15;

Regarding claim 21, a method to facilitate handing off wireless communication from a wireless local area network to wireless wide area network is anticipated by *"seamless mobility between GSM network and WLAN network"* disclosed on page 2, lines 7-23; comprising:

- monitoring wireless communication paths for at least some access points of the wireless local area network is anticipated by *"MS 150 measures WLAN signal levels at all time"* disclosed on page 5, paragraph 42, line 5;

- determining a plurality of measured quality of service metrics over a sampling period for at least some of the monitored wireless communication paths is anticipated by *"when WLAN signal level drops below the threshold limit"* disclosed on page 5, paragraph 42, line 6,

- for at least some of the monitored wireless communication paths, using the plurality of measured quality of service metrics to extrapolate likely future quality of service values is anticipated by *"comparison the threshold value and the receive signal levels"* disclosed on page 4, paragraph 36, lines 1-8;

- using the likely future quality of service values to determine a probability that at least one of the monitored wireless communication path will continue to provide viable wireless communication service is anticipated by *"when the comparison between the threshold and receive signal level indicates that WLAN cell should be selected, mobile*

device continues to receive service from the WLAN cell"; disclosed on page 4, paragraph 36, lines 1-15

-using the probability to determine whether a wireless subscriber unit presently supporting a wireless local area network communication is likely to soon require hand off of that communication to the wireless wide area network is anticipated by "*when WLAN signal level drops below the threshold limit signal that mobile should handoff to GSM network*" disclosed on page 5, paragraph 42, line 6-9,

Regarding claim **22**, wherein monitoring wireless communication paths for at least some access point of wireless local area network comprises monitoring all the wireless communication paths that are received is anticipated by "*MS 150 measures WLAN signal levels at all time*" disclosed on page 5, paragraph 42, line 5.

Regarding claim **23**, wherein monitoring wireless communication path paths for at least some access points of wireless local area network comprises monitoring only selected wireless communication paths such that receivable wireless communication paths that are not selected are not monitored is anticipated by "*paths are reported in the measurement report if there receive signal level is greater than the threshold*" disclosed on page 5, paragraph 0046, line 1-15.

Regarding claim **24**, wherein monitoring wireless communication paths such that receivable wireless communication paths that are not selected are not monitored comprises:

-receiving information regarding access points is anticipated by "*measurement report calculated by mobile station*" disclosed page 5, paragraph 0046, lines 9-15;

-using the information regarding access points to identify selected wireless communication paths to monitor is anticipated by “reserved frequency number are assigned to the WLAN and they are reported to the mobile in measurement reports” disclosed on page 5, paragraph 44, lines 1-15.

3. Claim 1 is also rejected under 35 U.S.C. 102(e) as being anticipated by Ibe (US 2004/0087307).

Regarding claim 1, a method comprising

- Providing at least one threshold value is anticipated by is anticipated by “threshold value d” disclosed on page 2, paragraph 19, lines 3-6;

- Determining a quality of service for a wireless communication link with at least one access point that comprises a part of a wireless local area network is anticipated by “mobile device has the capability to monitor signal quality by measuring the signal to noise ratio” disclosed on page 2, paragraph 19, lines 1-3;

- Determining a likelihood that the quality of service will have at least a predetermined relationship with respect to the at least one threshold value at a predetermined future time is anticipated by “when SNR drops to a cutoff value $r > d$, the system initiates the handoff with the objective of completing the handoff procedure before the SNR drops down to the threshold value d” disclosed on page 2, lines 7-10.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2666

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim **11, 26-27** are is rejected under 35 U.S.C. 103(a) as being unpatentable over Kallio (US 2002/0147008) in view of Natarajan et al. (US 2004/0097230).

Regarding claim **11**, Kallio (US 2002/0147008) teaches all the limitation of claim 10 (see 102 rejection for claim 10 above), expect Kallio (US 2002/0147008) does not expressly disclose second predetermined future time is sooner than the predetermined future time. Natarajan et al. (US 2004/0097230) discloses second predetermined time interval (T_{LWM}) is sooner than the predetermined future time (T_{LD}) (refer Fig.6 of Natarajan et al. (US 2004/0097230). At the time the invention was made it would have been obvious to a person in ordinary skill in art to modify the method of Kallio (US 2002/0147008) by adding second predetermined future time is sooner than the predetermined future time of Natarajan et al. (US 2004/0097230). One in ordinary skill in art would have been motivated to do this to ensure handoff is completed before the link goes down (see page 4, paragraph 34, lines 1-5 of Natarajan et al. (US 2004/0097230).

Regarding claim **26**, Kallio (US 2002/0147008) teaches all the limitation of claim 10 (see 102 rejection for claim 10 above), expect Kallio (US 2002/0147008) does not expressly disclose second future point in time that is closer in time than the first future point in time. Natarajan et al. (US 2004/0097230) discloses second predetermined time interval (T_{LWM}) is sooner than the predetermined future time (T_{LD}) (refer Fig.6 of Natarajan et al. (US 2004/0097230). At the time the invention was made it would have

Art Unit: 2666

been obvious to a person in ordinary skill in art to modify the method of Kallio (US 2002/0147008) by adding second predetermined future time is sooner than the predetermined future time of Natarajan et al. (US 2004/0097230). One in ordinary skill in art would have been motivated to do this to ensure handoff is completed before the link goes down (see page 4, paragraph 34, lines 1-5 of Natarajan et al. (US 2004/0097230)).

Regarding claim 27, wherein using the likely future quality of service values to determine a probability that at least one of the monitored wireless communication paths will continue to provide viable wireless communication service further comprises using the first and second likely future quality of service values to determine corresponding probabilities that at least one of the monitored wireless communication paths will continue to provide viable wireless communication service at the first future point in time and second future point in time is anticipated by *"WLAN-receive signal levels may contain two threshold values to ensure than the mobile device is being serviced when within the wireless coverage area"* disclosed on page 5, paragraph 48, lines 1-8.

6. Claim 17 rejected under 35 U.S.C. 103(a) as being unpatentable over Kallio (US 2002/0147008) in view of Jagadeesan et al (US 2005/0059400).

Kallio (US 2002/0147008) teaches all the limitation of claim 17 (see 102 rejection for claim 16 above), except Kallio (US 2002/0147008) does not expressly disclose determining quality of service further comprises determining a link margin value as corresponds to the wireless communication link function, at least in part, of received signal strength value. Jagadeesan et al (US 2005/0059400) teaches SNR (link Margin)

Art Unit: 2666

takes in account received signal strength and background noise or interference (see page 4, paragraph 0033- lines 7-11). At the time the invention was made it would have been obvious to a person in ordinary skill in art to modify the method of Kallio (US 2002/0147008) by enhancing quality of service by determining a link margin value as corresponds to the wireless communication link function, at least in part, of received signal strength value. One in ordinary skill in art would have been motivated to do this because SNR may be a better predictor for bit error rate and packet error rate than RSS (see page 4, paragraph 33, lines 11-13 of Jagadeesan et al (US 2005/0059400).

Allowable Subject Matter

7. Claims **6-8,12, 20,25** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

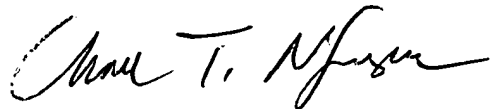
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Puneet Bhandari whose telephone number is 571-272-2057. The examiner can normally be reached on 9.00 AM To 5.30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on 571-272-3174. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2666

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Puneet Bhandari
Examiner
Art Unit 2666



CHAU NGUYEN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600